

We claim:

1. A method of analysis of schlieren, said method comprising the steps of:
 - a) irradiating a test sample with light from a light source;
 - b) producing a shadow image of the test sample on a projection screen;
 - c) receiving the shadow image of the test sample projected on the projection screen in an electronic image receiving device;
 - d) processing the shadow image received in the electronic image receiving device to measure schlieren image contrast; and
 - e) comparing said schlieren image contrast measured in the shadow image of the test sample with schlieren image contrast of a shadow image of a schlieren pattern of a comparison sample and evaluating the schlieren of the test sample by means of the comparing.
2. The method as defined in claim 1, wherein said schlieren pattern of said comparison sample is measured interferometrically to obtain interferometric measurements and further comprising calibrating said schlieren image contrast of the test sample with said interferometric measurements.
3. The method as defined in claim 2, wherein the comparison sample and the test sample are made from identical optical materials.

4. The method as defined in claim 1, wherein the comparison sample is made from a different material than that of the test sample and the comparison sample made from said different material is calibrated with another comparison sample made of another material that is identical to said optical material of the test sample.

5. The method as defined in claim 1, further comprising calibrating a synthetic schlieren plate comprising said comparison sample, which has an artificial schlieren with a positive phase shift in stages of about 5 nm to about 50 nm and widths of about 0.1 mm to about 0.5 mm at a wavelength of 550 nm.

6. The method as defined in claim 1, further comprising tilting and rotating said test sample in a plurality of directions in relation to an optical axis of a measurement device for the processing of the shadow image.

7. The method as defined in claim 3, wherein said optical materials each comprise a crystalline or a glassy material.

8. The method as defined in claim 4, wherein said different material and said optical material each comprise crystalline or glassy material.

9. The method as defined in claim 3 or 4, wherein said optical materials each or said different material consists of crystalline material and said crystalline material is calcium fluoride or barium fluoride.

10. The method as defined in claim 1, wherein the electronic image receiving device is a digital camera.

11. An apparatus analysis of schlieren, said apparatus comprising:

means for irradiating a test sample with light from a light source, said means for irradiating including a sample holder and the light source;

means for producing a shadow image of the test sample on a projection screen, said means for producing the shadow image including the projection screen;

means for receiving the shadow image of the test sample projected on the projection screen in an electronic image receiving device;

means for processing the shadow image received in the electronic image receiving device to measure schlieren image contrast, said means for processing the shadow image being connected electronically with said means for receiving the shadow image;

means for comparing the measured schlieren image contrast measured in the shadow image of the test sample with schlieren image contrast of a shadow image of a schlieren pattern of a comparison sample and evaluating the schlieren of the test sample by means of the comparing.

12. The apparatus as defined in claim 11, wherein the shadow image of the comparison sample or a synthetic schlieren plate comprising the comparison sample is stored in the electronic image processing device.

13. The apparatus as defined in claim 11, wherein the electronic image receiving device comprises a digital camera.

14. A process for evaluating an optical material for the manufacture of lenses, prisms, light conductive rods, optical windows and optical components for DUV photolithography, steppers, lasers including Excimer lasers, wafers, computer chips, integrated circuits and electronic devices including integrated circuits, said process comprising a method of analysis of schlieren of said optical material, said method comprising the steps of:

- a) irradiating a test sample of said optical material with light from a light source;
- b) producing a shadow image of the test sample on a projection screen;
- c) receiving the shadow image of the test sample projected on the projection screen in an electronic image receiving device;
- d) processing the shadow image received in the electronic image receiving device to measure schlieren image contrast; and
- e) comparing the measured schlieren image contrast measured in the shadow image of the test sample with schlieren image contrast of a shadow

image of a schlieren pattern of a comparison sample and evaluating the schlieren of the test sample by means of the comparing.

15. The process as defined in claim 14, wherein the electronic image receiving device is a digital camera.

16. The process as defined in claim 14, wherein the comparison sample is made from a different material than that of the test sample and the comparison sample made from said different material is calibrated with another comparison sample made of another material that is identical to that of the test sample.